IN THE CLAIMS:

1. (currently amended) A method for interfacing an electric motor to a controller using an electrical interface circuit, the interface circuit including a controller circuit and a motor control circuit, the controller circuit including a transmitter circuit and a receiver circuit, the motor control circuit including a transmitter circuit and a receiver circuit, and the interface circuit electrically coupled to the controller and the electric motor, said method comprising the steps of:

coupling the motor control circuit directly to the electric motor, wherein the motor control circuit is separate from the controller;

adjusting a level of a first signal received from the controller that is separate from a thermostat configured to communicate a temperature to the controller;

converting the first signal received from the controller to generate a second signal including at least one of an infrared signal and a radio frequency (RF) signal;

outputting the second signal to control the electric motor;

receiving, by the motor control circuit, a third signal from the electric motor; and

transmitting the third signal from the electric motor to the controller.

2. (previously presented) A method in accordance with Claim 1 further comprising receiving the first signal, wherein said step of receiving the first signal comprises the step of the controller circuit receiving electrical signals from the controller.

3. (canceled)

4. (previously presented) A method in accordance with Claim 1 wherein said step of adjusting a level of the first signal comprises the step of adjusting the level to communicate with an ECM motor.

5. (previously presented) A method in accordance with Claim 1 wherein said step of outputting the second signal comprises the step of isolating a transmit signal to the electric motor.

6. (previously presented) A method in accordance with Claim 1 wherein said step of outputting the second signal further comprises the step of interrogating the electric motor to acquire status and diagnostic information.

7. (original) A method in accordance with Claim 6 wherein said step of interrogating the electric motor further comprises the step of acquiring at least one of an operating status, an operating speed, an operating torque, an input power consumption, an under-speed condition, and a time of operation above a desired power level from the electric motor.

8. (previously presented) A method in accordance with Claim 1 wherein said step of outputting the second signal further comprises the step of commanding the electric motor to operate as at least one of a constant torque motor, a constant airflow motor, and a constant speed motor.

9. (previously presented) A method in accordance with Claim 1 wherein said step of outputting the second signal comprises the step of controlling at least one of an operating profile, a delay profile, a slew rate, a speed limit, dynamic braking, and an inrush current of the electric motor.

10. (previously presented) A method in accordance with Claim 1 wherein said step of receiving a third signal comprises the step of isolating a receive signal from the electric motor.

11. (previously presented) A method in accordance with Claim 1 wherein said step of transmitting the third signal comprises the step of converting an electrical signal from the electric motor to at least one of an infrared signal and an RF signal.

12-30. (canceled)

31. (currently amended) An electrical interface circuit comprising:

a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, and further configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and

a motor control interface circuit directly coupled to an electric motor and coupled to said controller interface circuit, said motor control interface circuit comprising a second transmitter circuit and a second receiver ~~circuit.~~circuit, is separate from said controller, and configured to receive signals generated by said electric motor.

32. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to adjust a voltage signal received from said controller to a desired level to communicate with said electric motor.

33. (previously presented) An electrical interface circuit in accordance with Claim 32 wherein said electrical interface circuit configured to adjust the voltage level to communicate with said electric motor, said electric motor configured as at least one of an ECM and an ECM variable speed motor.

34. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to adjust a voltage signal received from said electric motor to a desired level to communicate with said controller.

35. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to isolate a transmit signal to said electric motor and isolate a receive signal from said electric motor.

36. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said second transmitter circuit comprises a first optocoupler.

37. (previously presented) An electrical interface circuit in accordance with Claim 36 wherein said first optocoupler configured to provide noise immunity by isolating said second transmitter circuit from said electric motor.

38. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said second receiver circuit further comprises a second optocoupler.

39. (previously presented) An electrical interface circuit in accordance with Claim 38 wherein said second optocoupler configured to provide noise immunity by isolating said second receiver circuit from said electric motor.

40. (previously presented) An electrical interface circuit according to Claim 31 wherein said motor control interface circuit electrically connected to said controller interface circuit using at least one of a serial four-wire communications cable, a wireless interface, and a digital wireless interface.

41. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to interrogate said electric motor to acquire status and diagnostic information.

42. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to command said electric motor to operate as at least one of a constant torque motor, a constant airflow motor, and a constant speed motor.

43. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to interrogate said electric motor to acquire at least one of an operating status, an operating speed, an operating torque, an input power consumption, an under-speed condition, and a time of operation above a desired power level.

44. (previously presented) An electrical interface circuit in accordance with Claim 31 wherein said electrical interface circuit configured to control at least an operating profile, a delay profile, a slew rate, a speed limit, dynamic braking, and an inrush current of said electric motor.

45. (canceled)

46. (previously presented) An electrical interface circuit according to Claim 31 wherein said motor control interface circuit configured for bi-directional communication with said controller interface circuit using at least one of a voltage signal, an infrared signal, and a RF signal.

47. (previously presented) An electrical interface circuit according to Claim 31 wherein said controller interface circuit configured for bi-directional communication with said motor control interface circuit using at least one of a voltage signal, an infrared signal, and a RF signal.

48. (previously presented) An electrical interface circuit according to Claim 31 wherein said controller interface circuit configured to convert at least one of an infrared signal and an RF signal to a voltage signal.

49-53. (canceled)

54. (currently amended) An electrical interface circuit for a HVAC system comprising an electronically commutated motor, said electrical interface comprising:

a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, and configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and

a motor control interface circuit directly coupled to an electronically commutated motor and coupled to said controller interface circuit, said motor control interface circuit coupled to said controller interface circuit by using a serial four-wire communications cable, said motor control interface circuit including a second transmitter circuit and a second receiver circuit, is separate from said controller, and configured to receive signals from said electronically commutated motor, said second transmitter circuit including a first optocoupler, and said second receiver circuit including a second optocoupler, said first and second optocouplers configured to isolate signals between said motor control interface circuit and said electronically commutated motor, and said electrical interface circuit configured to interrogate said electronically commutated motor to acquire status and diagnostic information.

55. (previously presented) An electrical interface circuit in accordance with Claim 54 wherein said electrical interface circuit configured to command said electronically commutated motor to operate as at least one of a constant torque motor, a constant airflow motor, and a constant speed motor.

56. (previously presented) An electrical interface circuit in accordance with Claim 54 wherein said electrical interface circuit configured to interrogate said electronically commutated motor to acquire at least one of an operating status, an operating speed, an operating torque, an input power consumption, an under-speed condition, and a time of operation above a desired power level.

57. (previously presented) An electrical interface circuit accordance with Claim 54 wherein said electrical interface circuit configured to control at least an operating profile, a delay profile, a slew rate, a speed limit, dynamic braking, and an inrush current of said electronically commutated motor.

58. (currently amended) An electrical interface circuit for a HVAC system comprising an electronically commutated motor, said electrical interface comprising:

a controller interface circuit configured to communicate signals with a controller, said controller interface circuit including a first transmitter circuit and a first receiver circuit, said controller interface circuit configured to convert a voltage signal to at least one of an infrared signal and an RF signal; and

a motor control interface circuit directly coupled to an electronically commutated motor and coupled to said controller interface circuit, said motor control interface circuit coupled to said controller interface circuit by using a digital wireless interface, said motor control interface circuit including a second transmitter circuit and a second receiver circuit, is separate from said controller, and configured to receive signals from said electronically commutated motor, said second transmitter circuit including a first optocoupler, said second receiver circuit including a second optocoupler, said first and second optocouplers configured to isolate signals between said motor control interface circuit and said electronically commutated motor, and said electrical interface configured to interrogate said electronically commutated motor to acquire status and diagnostic information.

59. (previously presented) An electrical interface circuit according to Claim 58 wherein said motor control interface circuit configured for bi-directional communication with said controller interface circuit using at least one of a voltage signal, an infrared signal, and a RF signal.

60. (previously presented) An electrical interface circuit according to Claim 58 wherein said controller interface circuit configured for bi-directional communication with said motor control interface circuit using at least one of a voltage signal, an infrared signal, and a RF signal.

61. (canceled)

62. (previously presented) An electrical interface circuit according to Claim 58 wherein said controller interface circuit configured to convert at least one of an infrared signal and an RF signal to a voltage signal.

63. (previously presented) An electrical interface circuit in accordance with Claim 58 wherein said electrical interface circuit configured to command said electronically commutated motor to operate as at least one of a constant torque motor, a constant airflow motor, and a constant speed motor.

64. (previously presented) An electrical interface circuit in accordance with Claim 58 wherein said electrical interface circuit configured to interrogate said electronically commutated motor to acquire at least one of an operating status, an operating speed, an operating torque, an input power consumption, an under-speed condition, and a time of operation above a desired power level.

65. (previously presented) An electrical interface circuit accordance with Claim 58 wherein said electrical interface circuit configured to control at least an operating profile, a delay profile, a slew rate, a speed limit, dynamic braking, and an inrush current of said electronically commutated motor.